

3D CONSTRUCTION SOFTWARE USERS GROUP

AN ASSOCIATION OF 3D SOFTWARE DEVELOPERS AND END USERS
FOR THE CONSTRUCTION INDUSTRY



Find, Fix, Follow, Finish, Repeat.

EDITORIAL

Welcome to issue 6 of the 3D Construction Kit User Group Newsletter.

It seems amazing how time flies doesn't it? Here we are at the end of our first year of the User Group already! It is nice to see that this issue is a bit bigger than usual to celebrate the occasion - although that had nothing to do with me, of course, but to everyone who sent in contributions since the last issue. The more contributions I receive the bigger each issue will be. Lets hope that there will be many fatter issues during the next twelve months!

That isn't the only way we are going to celebrate the first very successful year of the Group. This issue brings with it a mega competition with some fabulous prizes - first prize is a CDTV!! and entry just couldn't be easier. See the centre pages for further details on how to enter and what you have to do. As the competition is for 16 bit owners I am planning a competition in the next Newsletter for 8 bit owners so they don't feel left out of things.

Also in this issue we have a rather interesting interview with the programmers of the Kit and with Ian Andrew himself - the man behind it all - if it wasn't for Ian's initial idea we wouldn't be owners of the 3D Kit now - thanks Ian for all the pleasure you have given us. Thanks also for allowing members of the User Group to have the opportunity of upgrading at a reduced cost to the new version when it comes out. More details about that in the interview with the man himself.

The advent of Easter this month has put this issue a bit behind schedule I'm afraid. Also an extremely nasty dose of that horrible flu knocked me off my feet for nearly two weeks and I have been trying to catch up with all correspondence ever since. If you are waiting to hear from me please be patient, you will hear from me soon, honestly!

After mentioning Adventure Probe's PD Library and Atlas Software in the last editorial quite a few of you have been in touch asking about them. Also I've had letters from 8 bit owners who, because of the lack of support for their machines in other magazines and clubs, have been begging me to ensure that 8 bit machines continue to get their fair share of coverage in the Newsletters. Don't worry, equal coverage for ALL versions will continue as long as I keep receiving contributions from you. Also, just to show you that I don't just use my 16 bit computers all the time, you will see that one of my own games will be on the cover tape of Zzap 64 in both the May and June issues. There, that should prove that I am faithful to the old 8 bit machines too!

Talking about 8 bit and 16 bit, it seems that I'll never manage to catch up! I thought when I upgraded to 16 bit that it was the "bees knees" but now I hear that 32 bit machines are going to be the "in thing" for home use and there is mention of 64 bit machines too! It isn't fair! I reckon I'll always be one step behind at this rate! But just imagine what the 3D Kit would be like on one of those monsters?!

Well I see the bottom of the page rapidly approaching once again so I had better sign off. I sincerely hope that you all enjoy this issue and that I will hear from more of you soon with your lovely letters and contributions for future issues. See you all again in issue 7 which will be the June/July 1992 issue. Bye for now,

Mandy

LETTERS

Dear Mandy

I read the latest issue of the club newsletter and was pleased that you like my game INFILTRATION. I released it as Shareware in the hope that I could cover my costs and to enable me to release more stuff as PD. Unfortunately, I've only had one registration so far (even though the game has been available since last October). I would like to point out that the datafile for INFILTRATION is available to registered users of the game. I was also a little disappointed at the small number of contributions to the PD Library so far so I decided to send in a disk of borders and a tutorial file to help users with little graphical ability to produce their own quality borders. I think it might be a good idea to offer some kind of incentive to people to send in PD contributions. Perhaps a disk from the collection in exchange or maybe even a free year's membership for the best contribution of each issue. I am looking forward to the release of the 3D KIT PROFESSIONAL and hope that it will enable me to produce even better games with more complicated objects. I think it might be a good idea to have some sort of light source shading available. Please ensure that the new version has a large library of samples as the ones with the first KIT were pretty grotty. Is there any chance that registered users of the KIT might get the professional version at a reduced cost (I don't think I could afford it otherwise). PS. If you do decide to let users have a free PD disk in exchange for their contributions I would like a copy of THE MAZE for Atari ST (as I have a 1 meg machine I would be able to run it).

Robin Ball, Devises, Wiltshire
ATARI ST

What an excellent idea, Robin. The PD disk you asked for is on its way to you. Anyone who has sent in PD contributions can select from the other PD list. Those who have already sent in PD contributions please let me know what you would like! I think that your idea of some form of reward for the best contributor to each Newsletter may well be an excellent one. It might encourage more of you to send in routines, tips etc. Watch out for the next newsletter to see what develops.....Mandy

Dear Mandy

Recently I purchased a game of yours called 3D Construction Kit. I am pleased with it but am wondering how to draw curves. Because in the tutorial video it says you can even create your own car games and things but without a curve function I cannot see how this can be done. Can you tell me if it is possible. Please reply to this letter because previously when I have written letters to other companies they have not replied and since you are a big company I would like you to reply.

Christopher Horler Nottingham
AMIGA

There is no facility to draw curves in your version of the Kit, Christopher. The wheels of the objects you have seen are done by using inverted pyramids which are slotted together to form a circle. You can see how this was done if you use the HIGHLIGHT or EXCLUDE function on the kit. I am sorry that you have been ignored by some companies when you wrote to them for help. However, you have come to the right place as that is what I am here for!.....Mandy

Dear Mandy

Please could somebody help me? I have an Amstrad CPC464 with 64K expansion and have the ADVANCED ART STUDIO on cassette. Please could somebody advise me how to load the programs on side B of the cassette, ie. Raytrace, Cycle dem., the windows library with the clouds, doors, drawbridge etc? I just cannot get them to load and returning to the company who sold it to me for help just elicited another copy of the program which is exactly the same. I would be extremely grateful for any help that a member of the User Group can give me.

Guy Cook

2 FONTWELL ROAD, SELSEY, W. SUSSEX, PO20 0PE
AMSTRAD CPC464

If anyone can help Guy out, please write to him direct as soon as you can as he is almost pulling his hair out in frustration!.....Mandy

Dear Mandy

I have been a member of the user group since it first began, but this is the first time I have written to you. There are several reasons for this. I wanted to get to grips with the kit and give it a good trial, for one thing. I must say that, although the kit is the most user-friendly piece of software that I have ever seen, there were a couple of things which I wasn't quite sure how to handle at first - but these were soon sorted out, all thanks to the User Group! It has really been invaluable to me, and I shall have no hesitation in renewing my membership for another year! I am still not quite sure how to use the TIMER. Can you give me any help on this? Specifically, to program a delay for my Text output before it automatically clears (as it stands now, my program temporarily halts while the text is shown, particularly as the credits roll at the end of my game!). Before I sign off I must add my voice to all the others and say how eagerly I am looking forward to seeing the "professional" version of the Kit! I hope it is as easy to use as the original! What I would really like to see would be a "virtuality" style headpiece and guidance unit for use with the Kit! Then we could REALLY get into our environments! I look forward to another successful year of the User Group and hope to be contacting you again soon.

Peter Ward, Dartford, Kent
ATARI ST

You need to bring system variable 19 into the program to overcome your TIMER problem, Peter, what you should do is to multiply the number of seconds that you want the message to appear by 50 and store that amount in variable 19. Do this in the condition that prints the message on screen. You should have a General Condition which constantly monitors the value of variable 19 and when it reaches 0 it prints a blank line on the instrument. This should sort out the problem you have been experiencing. I am delighted to hear that you will be renewing your subscription to the User Group. The hints and tips you enclosed with your letter were extremely useful and I hope you will send us some more of the same for future issues. We won't have much longer to wait now for the new version of the Kit, Peter. Good news is that following the interview with the programmers - which you will find tucked away somewhere in this issue - members of the User Group will definitely be able to upgrade instead of paying full price for the new version. One thing I can tell you about the new version is that it will be, in fact, much EASIER to use than the version we have already! I don't think your dreams of the headpiece will be realised yet though!.....Mandy

Dear Mandy

I was having a problem when loading my C64 version of the 3-D Kit in that, the Disk Drive motor continued running after I had loaded either the Environment Editor or the Condition Editor. As you suggested I returned the disk to Domark with a letter and I received a Disk back but with no covering letter of explanation and found that I still got the same effect. I wrote to them again, but did not return the Disk but enclosed a SAE and so far I have had no response. In the meantime, in desperation, I phoned Steven Flanagan who proved to be most helpful. He gets over this problem using his Action Replay cartridge. After loading the Editor(s), you Freeze the screen, the motor stops, and then you press F3 and you can start editing. Another way out if you do not possess Action Replay is, after loading the Editor, go to the Load Icon, select Disk and enter 1 and this stops the motor. I was very grateful to Steven and he suggested that I wrote to you, giving this information for other C64 users who might be having the same problem. Finally, if C64 users want to know where to get Advanced Art Studio, I have just obtained one from Datel Electronics, Govan Road, Fenton Industrial Estate, Fenton, Stoke-on-Trent, ST4 2RS. Telephone 0782 744234. I thought Issue 5 of the Newsletter was excellent! Keep up the good work!

A. Rawson South Norwood, London
COMMODORE 64

Many thanks for your kind remarks and for your most useful tip for Commodore 64 users. Anyone else got any tips for overcoming annoying things like this?.....Mandy

Dear Mandy

I have just finished reading the back issues you sent me and they were excellent and thank you for your reply regarding the character sets. I am enclosing two routines which you may find useful. Did you know that there are three undocumented commands on the Spectrum version of the Kit? These are SETWPOS X, Y, which sets the X and Y positions of the top left hand corner of the playing area. SETWSIZE, Width, Height which determines the width and height of the playing area. Note though, that these two commands can cause the Kit to crash if you set the ranges too large to fit onto a Spectrum screen. The last command is CALLMC, first byte, second byte, this command is used to call machine code routines outside of the Kit. These commands were printed in Your Sinclair Spectrum magazine and I want to know if it is alright to use them to set the windows and to call machine code routines?

Antony Quinn, Catchford, Warrington
SPECTRUM

Yes, I did know about the other commands. David Hoggan wrote to me recently about them. In all versions you will probably find that there are quite a few different commands hidden within the program that the programmers have put in that were not documented. This was not an oversight. In some of Incentive's other products, such as STAC, users discovered quite a few useful commands or routines that were most useful that the programmers had crammed into the system. Part of the fun of that User Group was in discovering them and passing the information on to other users. If I hear of any more I will publish them here.....Mandy

Dear Mandy

Please find enclosed my owners registration card and membership fee for the User Group. As you can see from the card I own a CPC6128. In the instruction manual the X, Y and Z values are quoted as 0-127, 0-63, 0-127 respectively for both object position and size.

Unfortunately I am only able to achieve 0-118, 0-55, 0-118. Is this a disc fault or an error in the manual? After at first formatting as per the manual instruction all attempts at saving produced an error message - Possible errors. press ENTER. On CAT the only entry was a 25K BIN file. The disc was re-formatted and on CAT two 16K files, 3D DATA and DISK were present, and now the SAVE operation worked! As the 3D Kit has been on the market now for a few months, is there any chance of obtaining back issues of the Newsletter for late starters like me?

R. Wright BFPO 140
AMSTRAD CPC6128

All back issues of the Newsletters are available from issue 1 so everyone can catch up with any that they have missed. New members are joining all the time so it is only fair to give them the opportunity of access to all the data we have covered so far. I am sorry you have had problems with the values quoted. I will check this for you with the programmers but I think it is probably the manual that is at fault. In many cases the final versions were changed slightly before release and the manual was written earlier so there was no time to make the changes.....Mandy

Dear Mandy

I have recently become the proud (and somewhat startled) new owner of the 3D CONSTRUCTION KIT. I bought it because the salesman explained what he thought it would do. As usual, the competence level of some sales people leaves a lot to be desired. I'm happy to say that, although I bought the software with the expectation of being able to do some of what I want, ie. house re-design and 3D Modelling, I've found, since purchasing the product, that it'll do that and considerably more. I am a user, not a software designer, so I always look for software that will do what I hope it will do. It appears, at this early stage anyway, to be exactly what I've been looking for since I first became interested in computing. I look forward to a long, interesting, developing experience with your produce. My congratulations to the designers and writers of the software!

Mark Nicholson, Wellington, New Zealand

Dear Mandy

I have a question to ask. Will the 3D Construction Kit User Group stay faithful to 8 bit computer owners like Spectrum owners, or will it eventually become an all 16 bit User Group? The reason I ask is because the decline of the amount of Spectrum software in the shops recently concerns me. In some places you can only buy budget software for the Spectrum. All the full price software tends to be for the Amiga or Atari ST. Your Sinclair magazine started a Support Our Speccy campaign because, naturally, they are concerned about this. I hope that you will stick with us 8 bit owners as it would be a very sad day if the User Group became all 16 bit User Group.

J.P. Messenbird Mitcham, Surrey
SPECTRUM

When Ian Andrew and I discussed all the details about the User Group way back in February of last year, we both agreed that every effort should be made to provide equal coverage for ALL versions of the Kit within the Newsletters with a view to ensuring that your fears would be groundless. With Adventure Probe magazine too, I always ensure that fair coverage is given to all machines, so please don't worry. One thing will ensure that this doesn't change and that is if I keep on receiving contributions from both 8 and 16 bit members for the

pages of the Newsletters. Keep the contributions coming in and I'll make sure that both versions are covered.....Mandy

Dear Mandy

I enclose my registration card for the very astute financial investment I have made. It is a good piece of software and I'm already using it creatively. I'm working on a 3D Steelwork package, (I'm a civil engineering student: Aston University), and I'm thinking about having a routine in PASCAL which would call up various 3D Stand-alones. Calling the EXE is no problem but it will look a bit messy with the English? French? Mouse? questions, and quitting is subsequently impossible (or is it?), even back to DOS. Can anyone help? Also, I can't afford another £60 for Delux Paint. Will Splash Paint use the IFF format? (it might work but I haven't got around to trying it yet). A good looking environment is important. Finally, can objects be other than squarely, horizontal or vertical? Any other angles possible? Also why the 60 object limit as this is very restricting when each beam is made up of 3 or four objects. Anyway, thanks for an impressive package. I might some day make as much money as it cost!

Phil Nelson Erdington, Birmingham
PC

I think that all your problems will be solved with the advent of the new version of the Kit, Phil. Just be patient for a little while. I am not sure if the Splash Paint package is compatible as I have not used this - maybe another reader can come up with the answer to that one - I suggest that you try loading one of the supplied borders into Splash Paint to see what happens. I would suggest that if you draw your borders to the correct size and save them out as a brush, having given the filename the .IFF you should be alright. Let me know what happens.....Mandy

Dear Mandy

Many thanks for your highly informative Newsletters concerning the 3D Construction Kit. I am a SYSOP (Systems Operator) of a Bulletin Board in the South/East Kent area, and am in the process of setting up a files and message area for the club so users can leave messages outlining problems and leaving tips etc on their experiences with the Kit. What I would like to ask the members is, would they let me have their borders/utilities etc which they feel would be of use to other members so I can make them available on my BBS. The message area and file area for the club would be a closed area to other "public" callers, and access to this closed area would only be available to "current" members of the club. ie. you would have to complete an on-line survey so as to be able to access the 3D Construction Kit area. My Bulletin Board details are:

KING OF THE CASTLE (0233) 620228
Baud Rates: 300/300., 1200/75, 1200/1200 on 8m
The system is available from 20:00 to 06:45am
Every night and other times at weekends.

Chris King

I don't know what the members think about the idea but I think it is excellent! I am all for spreading as much information about the Kit as possible. I see that Kit games are being produced now and are being marketed very successfully. The more members who can get their games onto the market the better!.....Mandy

MORE LETTERS NEXT ISSUE SO WRITE IN SOON!

CHATTING WITH THE WIZARDS

(AN INTERVIEW WITH THE PROGRAMMERS!)

Many of you have been asking me if I could tell you a little more about the programmers of the 3D Construction Kit and what has been happening at Incentive recently. I decided that I would put together all your questions and put them to the team. Here is what they had to say:

A visit to Incentive Software is a delightful experience. The place where all the action takes place is a spacious, air conditioned suite on two floors in a new building in Aldermaston. Anita and Ursula are usually the first friendly smiling faces to greet you when you arrive. Upstairs the programmers are hard at work together with Ian Andrew, the head of operations, who also has his spacious office on the upper floor. The atmosphere is extremely friendly, informal and peaceful. In fact after spending a day with the team I cannot in all honesty think of a nicer place to work! As one would expect, coffee abounds and hospitality takes first place.

My first question was put to Ian Andrew the friendly and extremely nice boss of Incentive:

MANDY: Ian, could you tell us how Freescape first came about and who was responsible for the original concept?

IAN: Actually I thought of the concept for Freescape back in 1986 when I was assessing where Incentive's future lay. I wanted to develop software that was unique at the time. I knew it would be difficult to develop but reckoned that the effort would be rewarded. My brother, Chris, joined the company to begin programming Freescape in September of 1986.

MANDY: What made Incentive decide to market such a great concept as Freescape for the general public when one would assume that you would like to keep it exclusively to yourselves and market more Freescape games?

IAN: Well, we were asked on many occasions by individuals throughout the industry when we were going to make a product to build Freescape games and so, after four years of producing games, we bowed to pressure and created the 3D Construction Kit.

At that point I decided to ask a few questions of the programmers and directed my first question at Paul Gregory who programmed the Atari ST and the Amiga version.

MANDY: Paul, how did you come to be involved with the programming of Freescape initially and with the 3D Kit in particular?

PAUL: I started work at Incentive just as Freescape began. Eventually I took over the programming of the Freescape system when the 16 bit versions of DRILLER and DARKSIDE had been released. I coded Total Eclipse, Castle Master and then the 3D Construction Kit.

MANDY: What was the very first computer that you owned?

PAUL: My first computer was a Sinclair ZX Spectrum.

Turning to Eugene Messina, who is the designer of the Kitgame on all

versions, I put the same questions to him.

MANDY: Eugene, how did you come to be involved with the programming of the Freescape system and the 3D Kit initially? Also what was the first computer that you owned?

EUGENE: Well, I answered an advert for a 3D graphics designer in a computer magazine, after spending a year or so building up a portfolio of 3D graphics and bit mapped graphics on the Amiga. I used to do some work in programming games software and graphics for Rainbird and Mirrorsoft. I have always been interested in 3D graphics and like a good editing and design interface. I too started on the good old ZX Spectrum.

Kevin Parker, the programmer of the PC, Spectrum and Amstrad versions was the next to tell me how he came to be involved with the programming of the Freescape system.

KEVIN: My first computer was a ZX 81. I used to work for Interceptor Ltd who did some tape and disc duplication for Incentive. The 3D Kit PC and 8 bit versions were my first Freescape projects.

MANDY: Everyone appreciates the way Incentive has always supported the 8 bit computers as well as the 16 bit's when other software houses have decided to ignore them in many instances, Ian. What do you feel about the 8 bit computers and their future?

IAN: I believe that 8 bit computers will be around for a long time to come. The question of a software company supporting any computer is answered by assessing the commercial reward likely to come from a certain amount of effort and investment. The other issue is of course, that the computer must be capable of operating the software at a satisfactory speed and have enough memory.

I turned my attention to the clever fellows responsible for the 8 bit versions of the Kit to follow up on this point.

MANDY: Can I ask you Eugene and Kevin to tell us a little more about this. It must have been quite a task to write the 3D Kit for the 8 bit computers considering the memory limitations. Where there any particular difficulties that you came across that you would like to tell us about?

KEVIN: Memory limitations; fitting all of the code, data and icon graphics in memory at once.

EUGENE: Yes, when designing a game on the 8 bit kit you must always consider how best to compact the Freescape Command Language logic by using procedures, and how to make the best use of global objects so as to squeeze as much as possible into the 8 bit machines.

MANDY: Ian, All the members of the User Group have expressed a keen interest in the new "Professional" version of the Kit and are eagerly awaiting its release. Could you tell us when we can expect its release and, as the "Professional version" is only the temporary title during the programming period, what it will be called?

IAN: It is expected to be released in the August/September period. The name of the product has yet to be announced.

MANDY: Will members of the User Group be able to upgrade their existing versions at a small charge? How much will this cost?

IAN: Yes. The cost is still to be confirmed but will be considerably less than buying it at full price.

MANDY: Which computers will the new version be available for?

IAN: Well, for now it will be available for Atari ST, Amiga (1 meg), PC - EGA, Tandy and VGA.

MANDY: Have you any plans to produce the new version for other computers in the future?

IAN: It is possible.

MANDY: Paul, I know you are hard at work on the new version at the moment. Can you tell us a little more about it and any new features that the new version will have?

PAUL: No, I'm afraid I can't! The new program is still under wraps at the moment, but it will have many new features!

Although the broad smiles on everyone's faces at the mention of the new version indicated that the final product would be extremely well worth waiting for, it seemed that I wasn't going to get much information about the new version until it is nearer to the release date. Having had first hand experience of the need to keep "mum" about new developments while everything is still under wraps, I decided to turn my attention to a slightly different subject.

MANDY: Ian, I know that you are all deeply involved in the new Superscape System. Can you tell us a little more about it?

IAN: Superscape is our latest development - a complete development system which currently costs £15,000 for the software. Its use at the moment is to provide interactive visualisation at a very high level. We will gladly send our latest information pack to any User Group members who request this.

I could see that by this time the team were itching to get back to their keyboards and, being one of the many people who can hardly wait for the release of the new version of the Kit, I decided that I could best help in that department by leaving them in peace to get on with it! So I thanked them heartily and took my leave!

I too am not at liberty to tell you much about the new version of the Kit until given the go ahead by Ian Andrew and the people at Domark. I do assure you that it will be well worth waiting for and I am grateful to Ian for arranging to let members of the User Group upgrade their existing versions for the new ones when the time comes. I will let everyone know immediately when this can be expected. Meanwhile, why not take a look at the competition in this issue?! You will see that taking part to win one of the new versions just couldn't be simpler!

Once again, my thanks to Ian and the lads from Incentive for taking the time off to give us a little insight into the workings behind the scenes!

MANDY

HINTS AND TIPS

TIPS by *Peter Ward* - ATARI ST

I noticed that if I loaded my datafile before loading my border, this sometimes caused the sound effects to become switched off! If anyone else has experienced this problem, the solution is simply to always load in your border first!

I have also noticed that several users seem to be experiencing difficulty using the area scaling. I wonder if perhaps I might have the solution to the problem. Several users report "no noticeable change" after altering the area scale. Perhaps they do not realise that once you have altered the area scale you must "take a step" (any direction, it doesn't matter) to see the effect the scale-change has.

On the subject of scales, I thought users may be interested to see a "scale table". This can be useful if you are trying to model a true-life area. I am afraid my measurements are Imperial, but this seemed to work out the best. They can always be converted to Metric, of course. The following scale is calculated assuming the default "view height" when standing as being an average human male.

3D Kit scale	*	No. of 3D Kit units to one imperial foot	*	Maximum area size (in feet) to nearest complete imperial foot
1	-	25	-	327
2	-	50	-	163 (default size)
3	-	75	-	109
4	-	100	-	81
5	-	125	-	65
6	-	150	-	54
7	-	175	-	46
8	-	200	-	40
9	-	225	-	36
10	-	250	-	32
11	-	275	-	29
12	-	300	-	27

That's about it. I only took it as far as scale 12 since you recommended in the Newsletter that this should be the maximum area scale used. As you see, it is straightforward mathematical progression.

HINT by *Mark Rose* - PC

Some people have asked about exiting the package on the PC. Well, when you quit from the package (file menu) and you are back at the

language choice screen, select the appropriate language. On the second screen, No 5 allows you to return to DOS, select this (it may be long winded, but it works ie., no reboot necessary).

TIPS by *Robin Ball* - ATARI ST

I have recently discovered a Public Domain package that seems to be ideal for making your stand alone games look more professional. It is called THE INTRO CONCEPT DEMO MAKER. It enables you to produce a small program which displays a picture along with a piece of music and a scrolling message. You don't have to have any programming knowledge at all to use it (though it would be useful if you can understand a little French as the program is from France). The whole lot is menu driven, you simply load up your picture file, select the text font and type in your message. Then select a piece of music and grab a sprite if you want one. Then simply compile the data and the resulting program can be put into an AUTO folder on your game disk along with the stand alone game program. Then when you reset the computer with the disk in the drive, your intro sequence will be displayed. Then by simply pressing the space bar you exit the intro and the main game loads. This is what I did on my borders disk. I think you'll agree, it looks great to start a game this way.

HINT by *Steven Flanagan* - COMMODORE 64

The pointer and cross-hair are sprites and can be changed with a sprite editor. The cross-hair is at \$c5c0 and the pointer is at \$c600. If you save these icons, you can load them into a sprite editor and then load your customised pointers back into your game.

TIP by *J. P. Messenbird* - SPECTRUM

Here is a tip for Multiface users. Select test mode, freeze the program and save the screen, then load it into your art package. There you have it, a template to draw your own borders around. You must not use this screen for any other reasons though because of infringement of copyright.

HINTS AND TIPS by *David Hoggan* - AMSTRAD CPC6128

Some objects use more memory than others so it is worth experimenting to find a substitute which uses less memory. For example: Object (129) in globals is a cube. Replacing this with a rectangle uses less memory.

Saving a backup copy of "KIT128.BIN" from side (1) of the Amstrad disc and using the backup copy saves wear and tear on the original disk.

Using these lines in conjunction with a memory editor, the user can examine and alter parts of the 3D program in memory and experiment:

Lines (1) open out "d":memory &1FF:load"kit128.bin",&2000
(2) call memory edit routine.

Run these lines. Line (2) point to the memory edit program stored

from &9000 onwards.

By altering position or size variables stored on user disk, objects can be displayed outside the normal playing area or size can be altered by using a disc editor.

Example: File (0) on the users data disc is stored at track (0), sector (&C5)

Examining this area you will discover that a rectangle created on file (0) at position (1,2,119), size (8,0,8) is stored on disc as:

POSITION	SIZE
&01,&02,&77	&08,&00,&08

Altering these variables to change SIZE and POSITION to the chosen position outside the area etc. The maximum value being (&FF) or 255.

At the end of each file is a number of bytes stored and used to trap errors etc. When adding to or subtracting from variables the amount must be added or subtracted from the bytes at the end of the file. Add if you add, subtract if you subtract. If the value is wrong the file will not load and error messages will appear.

Don't worry, the file isn't corrupt it is just the values you have miscalculated so make notes.

Example: Value stored at end of file = &40DF which is displayed as (&DF),(&40)

When you add &7F to the variables, also add &7F to the value at the end of the file which becomes (&415E) which is stored as (&5E),(&41).

If you've calculated the right amounts and re-saved the data to disc all should work out.

One more thing on this subject. Once you alter the variables above the limit you cannot alter them in the 3D Kit but you can change them back through the disc editor as before and then you can alter them in the Kit if they are within the variable limit.

Altering the System Variables (X, Y, Z) you can get interesting effects.

Example: This is a simple effect just to demonstrate the abilities. Much more complicated effects can be made - fly past lands etc.

In LOCAL or GENERAL conditions type this in:

```
CMPV    Key, 121 -key (defined by the user)
IFEQ
THEN
ADDV    10 117
REDRAW
ENDIF
```

On the CPC6128 I used key "F8" which equals (136)

IF ANYONE HAS ANY HINTS OR TIPS PLEASE SEND THEM IN FOR THE NEXT ISSUE

WIN! * WIN! * WIN! * WIN! * WIN! * WIN! * WIN! * WIN! * WIN! * WIN!

COMPETITION!

To celebrate the first extremely successful year of the 3D Construction Kit User Group, here is a great opportunity for you to walk off with some fabulous prizes!

WIN YOUR VERY OWN CDTV!

(DONATED BY DOMARK LTD)

LIKE THE ONE SHOWN ON THE OPPOSITE PAGE!

PLUS LOADS OF THE BRAND NEW "PROFESSIONAL" VERSION OF THE 3D CONSTRUCTION KIT ARE UP FOR GRABS FOR ALL THE RUNNERS UP!

Entry into the competition just couldn't be simpler! All you have to do is to design an object - not a fabulously extravagant or fanciful object either - just a domestic object that you would find around a home or garden! It's as easy as that!

Not only will you be in for the chance of one of the fabulous prizes but you will also get the chance to see your work published! All objects selected by Domark Ltd to be included on a disk of objects to be included with the new version of the 3D Construction Kit will win their own version of the new program and the object which Domark select as the winning object will win the designer their very own CDTV!

LOTS OF OBJECTS ARE NEEDED SO LOTS OF PRIZES TO BE WON!

The competition is open to all members of the User Group who are owners of the Amiga, Atari ST and PC versions of the Kit.

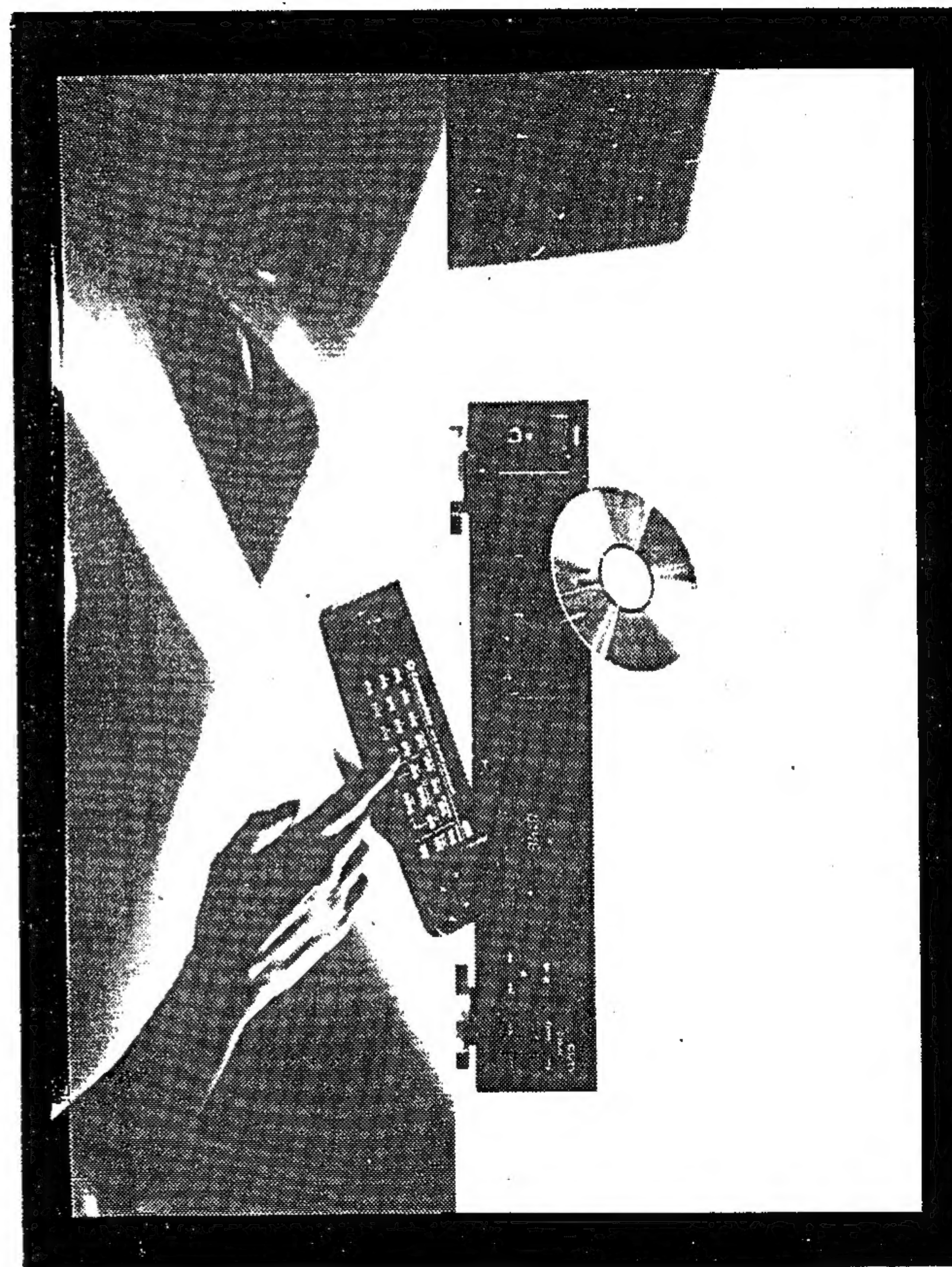
(So members with 8-bit machines don't feel left out of things, watch out for the next issue of the Newsletter to find a competition just for you!)

Send a disk containing your object (saved of course, as an OBJECT) and please don't forget to include details such as your name and address, the computer the object was designed on and your registration number to:

MANDY RODRIGUES
3D CONSTRUCTION KIT COMPETITION
67 LLOYD ST, LLANDUDNO, GWYNEDD, LL30 2YP

The competition is open to all Atari ST, Amiga or PC members of the 3D Kit User Group. The objects will be judged by Domark Ltd and the winners will be announced in a User Group Newsletter following the closing date of the competition which will be 31st May 1992. The judges decision is final and no correspondence will be entered into about their decision.

WIN! * WIN! * WIN! * WIN! * WIN! * WIN! * WIN! * WIN! * WIN! * WIN!



THE KITGAME SOLUTION 8 BIT VERSION By David Hoggan

1. Enter the Computer Room of the house on the starting screen and activate the keyboard that you find there.
2. On leaving the room, head down the passage next to the Computer Room. Keep following the passages until you reach a hidden room.
3. Shoot the Guards to the left and right of you. Retrieve the the safe combination and head for the exit which is directly in front of the house.
4. In the new room, shoot the dark wall and walk under and past it. Do a U-turn and shoot the triangle that you see. Now head for the exit which is next to the teleport machine.
5. In the next room, shoot the nose of the mask on the wall and go back into the previous room and enter the teleport.
6. Do a U-turn and shoot the triangle then press the "K" key until you leave the mask. Now pan left and head for the exit to the left of the mask.
7. In the new room, shoot the cross beam until the block moves above the guard. Now shoot the block and the guard will be crushed. Pan left and head for the new exit.
8. Shoot all the steps. Go through the exit above the steps and walk along the ledge into the new room.
9. Shoot the triangle which is hidden under the steps - on the back of the second step down.
10. Step onto the block which has appeared in the room and shoot the triangle next to the safe.
11. Activate the pentagon on the safe and retrieve the Pass Card on the wall where the safe was.
12. Now head for the door to the right of the house on the starting screen.
13. In the last room, activate the panel on the right hand wall and head for the Shuttle to complete the game.

If you want to visit the Island. Instead of going to the exit mentioned in direction number 6, go to the teleport a second time.

To leave the island, retrieve the key which is hidden at the top of the palm tree. Open the chest and jump inside.

If you want to collect the gold coins which are hidden around the adventure - e.g. behind the house - holding down the activate key over the coins will double the points per coin retrieved.

16 BIT ROUTINES

If any 8 bit members wish to adapt any of these routines to use on their machines there is just a little translation needed between the two FCL languages. Please refer to Newsletter 4 (page 5) for a list of the differences in commands. Please note though that animation is 16 bit specific and only simulated animation can be performed on the 8 bit machines.

GOING ROUND IN CIRCLES

By Mieke Van Der Poort - PC & AMIGA

In the last Newsletter I read that some members were wondering whether rotation of an object was possible. I discovered that in some cases the illusion of a rotation is possible. For instange, rotating the wings (or vanes) of a windmill, rotating the rotors of a helicopter or rotating a flying saucer whilst moving it in space.

It can be done by an animation I found in the Kitgame, in the area where the lamp of the lighthouse goes on and off.

For the wings of the mill you have to create 8 triangles as shown below:



Create two groups:

Numbers 2, 3, 4 and 5 are in one group (10)
Numbers 6, 7, 8 and 9 are in the other group (11)

Make objects 6, 7, 8 and 9 INVISIBLE.

Select say the floor as our trigger (cuboid 001) and make a condition for it as follows:

```
IF SHOT?
THEN STARTANIM (1)
ENDIF
```

Create Animation 1 and enter the following condition:

```
INCLUDE (10)
INCLUDE (11)
START
VIS (10)
INVIS (11)
END
INVIS (10)
LOOP (4)
VIS (11)
END
AGAIN
RESTART
```


You see group (10) vanish and group (11) appear and vice versa and so on. It seems as if the wings are rotating.

The loop command can be set lower and higher, lower is faster and higher is slower to create different effects.

When creating a "flying saucer" (which I did with two pyramids and two cubes), you save the object twice as a group with a different name. Once with "front look" and once turning it a quarter, so either the right or the left side is in front. Give the front and the side two different colours. After saving your objects, clear the screen, colour the area black and load in the first group. Make the parts of the object invisible and at the same time movable. Load in the second group and make sure all the parts of it are set as moveable and let it be visible.

Make a trigger condition for cuboid (001) as follows:

```
IF SHOT?
THEN STARTANIM (1)
STARTANIM (2)
ENDIF
```

Create animation 1 and enter the following condition for it:

```
INCLUDE (2)
INCLUDE (7)
START
INVIS (2)
VIS (7)
END
INVIS (7)
LOOP (4)
VIS (2)
END
AGAIN
RESTART
```

Create animation 2 and enter the following condition:

```
INCLUDE (2)
INCLUDE (7)
START
LOOP (20)
MOVE (20,20,-20)
AGAIN
LOOP (20)
MOVE (-20,20,20)
AGAIN
RESTART
```

For the loop and the move you can take any number you like to go in different directions. The effect should be that the flying saucer rotates as it flies into 3D space. Add an appropriate sound to make it more realistic and there you go!

A PUSH IN THE RIGHT DIRECTION!

By *Brian Woodley* - ATARI ST

Here is a little routine which lets you "push" an object or group of objects around an area. The first thing to do is to create your object which is to be moved. Call this cube 002 then create four rectangles and place them against the sides of the cube. You should now group these into GROUP (7) and make each object in the group moveable.

On each of the rectangles place the following conditions:

```
IF ACTIVATED?
THEN
SETVAR (x,V30)
STARTANIM (1)
ENDIF
```

Each rectangle must have a different value in (x) and for this example I will use the values 1, 2, 3 and 4.

Now create animation 1 and enter the following condition:

```
INCLUDE (7)
START
IF VAR=? (1,V30)
THEN
MOVE (-20,0,0)
STOPANIM (1)
ENDIF
IF VAR=? (2,V30)
THEN
MOVE (20,0,0)
STOPANIM (1)
ENDIF
IF VAR=? (3,V30)
THEN
MOVE (0,0,-20)
STOPANIM (1)
ENDIF
IF VAR=? (4,V30)
THEN
MOVE (0,0,20)
STOPANIM (1)
ENDIF
RESTART
```

Now if you activate the rectangles on the side of the cube, the cube (and the rectangles) should move, probably in the wrong direction! The way to alter this is to change the number (x) in the rectangle conditions, after a bit of trial and error you should have the cube working as it should. The best way to do this is to get one side right and then go on to the next side.

The distance the cube travels with each "push" can be changed by changing the +/- 20 in the MOVE statements in the animation. The routine works by detecting which rectangle is activated and then by moving the whole group in the correct direction.

The main strength of this routine is that it allows a player to change the environment from within the game. I think that variations of this routine could be used for game puzzles such as making a set of stairs from different sized blocks or putting chess pieces on the right squares on a giant chessboard.

INVENTORY WITH A DIFFERENCE

By J. Hayes - AMIGA

This routine is a method of informing the user of the objects they may be carrying in an inventory. The current object on view to the user is then available for use providing a more precise way of interacting with the environment.

It uses only one variable to keep an eye on what may be carried, up to a maximum of 16 items. It works by allocating a particular object to a particular bit - the value of this bit is then used to refer to that object throughout the environment. Also the presence of this value determines whether the object is carried or not. It works like this:

BIT (ITEM NO.)	VALUE IN THIS BIT WHEN SET	REPRESENTING OBJECT
1	1	OB 1
2	2	OB 2
3	4	OB 3
4	8	OB 4
5	16	OB 5
	and so on until:	
16	32768	OB n

Value = $2^{(BIT-1)}$

Object numbers refer to individual objects or a group.

To discover whether a certain object is carried, simply use its corresponding bit value and do a ANDV (Vinv,VALUE) - Vinv = Inventory store. If this is true the object is carried.

ROUTINE IN DETAIL:

To make this easier to transfer into other uses, games/environments, variables will be referred to by name:

Vinv = Users Inventory.
 Vitem = A pointer to an item (bit) in the inventory.
 Vvalue = The bit value for Vitem.
 Vcur = The current object (referred to as a value) on view to user.
 Vgen = Any general purpose variable.
 Vobnum = The object number as it will be in the environment.
 Vobval1 = The bit value of this object number, as it will be represented in the users inventory (ADD TO).
 Vobval2 = As above, but remove from.

First it is necessary in some way to place objects into the users inventory. An object can be "set" into an inventory with

ORV (Vobval,Vinv)

Remembering Vobval IS NOT an object number, but the value selected to represent it.

There are two ways it can get there:

1. Allow the user to already carry them when the environment starts up.
 - If so, these objects shouldn't exist until called for - ie, made visible.
2. Interact with the objects which already exist and the user is allowed to pick up, with the following:

For object condition enter:

```
IF ACTIVATED?
THEN SETVAR (obnum,Vobnum) - provide the object number.
SETVAR (obval, Vobval) - provide the value for it.
ENDIF
```

In a General Condition enter:

```
IF VAR>? (Vobnum,0) THEN
INVIS (Vobnum) - remove object from environment.
ORV (Vobval,Vinv) - add to inventory.
SETVAR (Vobval,Vcur) - make this the current object.
SETVAR (0,Vobnum) - clear.
SETVAR (0,Vobval) - Clear.
SOUND (4) - Ping!
ENDIF
```

This condition takes the data given to the variables when a selected object is activated? and removes it, adding it to the inventory.

Now we come to the main routine allowing the user to "see" what they are carrying. A text instrument has to be created, long enough for the object text to fit into. It will display whatever the current object is, in terms of the value representing it. Vcur holds this value and will remain visible until another is selected.

SHOW OBJECTS CARRIED:

In a General Condition enter:

```
IF VAR=? (Vcur,0)
THEN PRINT ("NOTHING {fill with spaces} ",1)
ELSE
IF VAR=? (Vcur,obval1)
THEN PRINT ("OBJECT A",1)
ELSE
IF VAR=? (Vcur,obval2)
THEN PRINT ("OBJECT B",1)
ELSE

and repeat for all the objects to be described

ENDIF
```

To select the next item in the inventory, the "?" key is used here to advance it onwards.

VIEW NEXT OBJECT:

In a General Condition enter:


```

IF VAR=? (V15,47)
AND VAR>? (Vinv,0)
THEN ADDVAR (1,Vitem)
IF VAR>? (Vitem,16) THEN
SETVAR (1,Vitem)
SETVAR (1,Vvalue)
ELSE
ADDVAR (Vvalue,Vvalue)
ENDIF
SETVAR (Vvalue,Vgen)
IF ANV (Vinv,Vgen) THEN
SETVAR (0,V15)
SETVAR (Vvalue,Vcur)
PRINT (" {spaces} ",1)
ELSE
SETVAR (0,Vcur)
ENDIF
ENDIF

```

- "?" pressed and INV. not empty.
- move pointer to next item in it
- if end of list
- reset this pointer and
- reset the value associated with it.
- else
- double value each time round.
- copy this value
- and test if it exists in inventory
- if yes, stop this condition repeating
- make this value the current reference
- and erase last object text.
- if not,
- nothing was found in that
particular item position - if the
bit was not set and the object
referred to by this value isn't
carried.

This last condition is the heart of the routine. It constantly loops around the inventory list, looking for the next occupied bit position, which contains the value referring to an object. It resumes when "?" key has been pressed.

It stops when one has been found and the value in Vcur is then used to print the object description out. What value an object represents is up to the game designer, so a little thought before hand is required to calculate it, given the item position (or bit position) it occupies.

If an object needs to be removed from a users inventory, a check has to be made if it is actually carried.

ANDV (Vinv,obvalue) will do this.

Only if true, can it safely be removed.

SUBVAR (obvalue,Vinv) will do this.

SETVAR (47,V15) - only required if object removed is currently referenced.

However, if the currently referenced object in Vcur needs to be removed, there isn't a need to check if it is carried first.

I trust that this routine will be of use to other users and I hope my explanations about it are clear enough to understand.

Mr Hayes has also sent a disk for the PD library which contains a small demonstration of this routine with a number of objects and various doors to be opened if you are holding the correct key. This is extremely useful for any Amiga owners who would like to see the whole inventory routine working without the need to type it all in.

See the item on PD disks for details.

8 BIT ROUTINES

Remember that if 16 bit users wish to use any of the 8 bit routines, only a simple adaptation is needed between the two FCL languages. Please refer to issue 4 (page 5) for the information on translating routines between the two. 16 Bit members should also note that PROCEDURE conditions which are 8 bit specific are subroutines and the CALL command is the same as GOSUB in BASIC.

FADE OUT!

By *Antony Quinn* - SPECTRUM + 3

Here is a routine for a fader which can be used for an endgame sequence:

PROCEDURE 001

```

COLOUR 0 7
REDRAW
COLOUR 0 6
REDRAW
COLOUR 0 5
REDRAW
COLOUR 0 4
REDRAW
COLOUR 0 3
REDRAW
COLOUR 0 2
REDRAW
COLOUR 0 1
REDRAW
COLOUR 0 0
REDRAW

```

The less objects you have in your area the faster the fade will be. You can swap the listing around to give a fade-in instead of a fade-out. To use the fader routine just use the CALL command, for example:

LOCAL CONDITION:

```

IFSHOT 8
THEN
CALL 1
ENDIF

```

ADDING A BIT OF BOUNCE

By *Antony Quinn* - SPECTRUM + 3

This routine could be used when, for example, you are landing a space craft on a landing pad to give the more realistic effect of your craft bouncing before finally coming to rest.


```

ADDV      4      115
REDRAW
SUBV      4      115
REDRAW
ADDV      3      115
REDRAW
SUBV      3      115
REDRAW
ADDV      2      115
REDRAW
SUBV      2      115
REDRAW
ADDV      1      115
REDRAW
SUBV      1      115

```

This routine can be activated when needed, for example:

```

IFHIT      001      (Big landing pad)
THEN
CALL      001
ENDIF

```

INVENTORY/INFORMATION SCREEN

By *Anthony Quinn* - SPECTRUM + 3

D. G. Marley sent in an excellent routine which was featured in issue 3 for an Information Screen but the only problem with it was that you could only return to the positions (entrances) in those areas. With the following routine you don't have to go to another area or store your position.

First of all you should create three objects. Object 1 is a closed door (a rectangle shaded number 12). Object 2 is a key (you can make this any shape and colour). Object 3 is an open door (a rectangle shaded number 2). Colour your area number 5. Your list should look like this:

```

001 ENTRANCE
002 RECTANGLE
003 (KEY SHAPE)
004 RECTANGLE

```

Now you should create four messages as follows:

```

001 INVENTORY
002 Carrying the key
003 The key is needed
004 Access is granted

```

The Variables we will use are as follows:

Variable 5

```

1 = Player holding the key
2 = Player not holding the key

```

Variable 14

Area colour (1 to 7)

Now enter the following conditions:

Note: Make sure you put the GENERAL condition AFTER General Condition 001. If you put it in condition 001 it won't register your keypress so any condition from 002 onwards is okay.

GENERAL CONDITION 002

```

CMPV      71      121
IFEQ
THEN
CALL      001
ENDIF

```

This ensures that pressing key "G" will activate the routine.

LOCAL CONDITION

```

SETV      5      14 (set colour to 5)
IFACTIVE  3
THEN
TEXTCOL   115
PRINT     2      10      22
DESTROY   3
SET       1      5
ENDIF
IFACTIVE  2
THEN
CALL      3
ENDIF

```

PROCEDURE 001

```

SOUND      1
COLOUR     000      000
TEXTCOL    71
PRINT      1      11      3
CMPV       1      5
IFEQ
THEN
PRINT      2      10      6
ENDIF
DELAY      50
REDRAW
CALL       2

```



```

CMPV      7      14
IFEQ
THEN
COLOUR 000      7
REDRAW
ENDIF
CMPV      6      14
IFEQ
THEN
COLOUR 000      6
REDRAW
ENDIF
CMPV      5      14
IFEQ
THEN
COLOUR 000      5
REDRAW
ENDIF
CMPV      4      14
IFEQ
THEN
COLOUR 000      4
REDRAW
ENDIF
CMPV      3      14
IFEQ
THEN
COLOUR 000      3
REDRAW
ENDIF
CMPV      2      14
IFEQ
THEN
COLOUR 000      2
REDRAW
ENDIF
CMPV      1      14
IFEQ
THEN
COLOUR 000      1
REDRAW
ENDIF

```

```

CMPV      000      5
IFEQ
THEN
TEXTCOL 113
SOUND      7
PRINT      3      11      22
ELSE
SOUND      2
TEXTCOL 115
PRINT      4      10      22
SETV      000      5
DESTROY    2

```

VIS 4
ENDIF

When you have typed it all in, ACTIVATE the key. Press key "G" and it will show you that you are carrying the key. Then open the door. That's all there is to it! Just remember to set Variable 14 (the AREA colour) to whatever colour your area is. If it is red then set Variable 14 2, and once you have used the object like a key remember to set Variable 5 to 0, so that the system knows that you have used it and will not print it in the inventory.

8 BIT ANIMATION

By *Steven Flanagan* - COMMODORE 64

When programming simulated animation on 8-bit machines you should follow these simple guidelines:

1. Use IFVIS instead of TOGVIS. This means that you can have more than one animation at once, because there is no set pattern to the animation sequence.

2. It is best to trigger the first object in the animation sequence randomly. This makes the animation less predictable. Unfortunately the Kit does not have a command to generate a random number so you will have to write your own generator.

The only way a computer can make a random number is to use its internal clock. In the Kit variables 122 and 123 are interrupt timers. Variable 122 increases 60 times a second, so you can randomly trigger the animation off by using:

```

CMPV      15      122
IFLT
THEN
VIS      1

```

with this



The above routines should be put in separate LOCAL conditions so that the player can move in mid-animation. The animation routines given in previous Newsletters only let the player move at the end of the animation.

There is no limit to how many stages your animation can have using these methods. This is the way I programmed my RACER routine in the PD of the User Group. If you own a C64 and are having problems with animation then I suggest you have a look at it. It consists of the road with cars on it coming towards you. You have to move left and right to avoid them. I used IFCRUSH to detect if one of the cars hits you. It is advisable to include a REDRAW at the end of all conditions containing visibility commands. This does slow the game down, unfortunately. If you do not include this command, the animation can only be seen if you keep moving.

I hope this routine has been of interest to you. If you have any queries you can contact me through my hotline number.

PUBLIC DOMAIN LIBRARY

NEW ADDITIONS TO THE LIST!

SOUND SAMPLES - AMIGA

Mieke Van Der Poll, bless her, was extremely frustrated that she couldn't get the Make Sample Bank program to work so I sent her another program that did the trick. She was so grateful that she has kindly donated a disk for the PD library that contains no less than 26 new sound samples on it together with the new MakeSampleBnk program that I sent her. The sound samples are extremely varied - which is why she has chosen to call the file "various.bnk". There is a sound for every occasion here! What more could you ask for? The sample bank is quite a big one - 219,588 bytes but it still loads together with the 3D Kit and all the sounds work very well indeed.

INVENTORY ROUTINE - AMIGA

This is the routine that is listed here in the newsletter by J. Hayes. It is an extremely interesting and useful routine and the demonstration datafile and the border provided on the disk show just how well the routine works. Very clever programming and a most useful routine to study and learn from!

SPIELRAUM - ATARI ST

Sent in by Peter Ward who said "this is not exactly an earth-shattering adventure, really more of a trial to see what could be done with the kit". Well if that is a first attempt I'm impressed. I got completely and utterly lost in the maze of passages - I can't figure out if pressing the PANIC BUTTON that I found helped or not! However, I'm going to keep trying to find my way about. Also on the disk you will find two objects, a galleon and a very well known starship! The disk has the runnable version of the program, the datafile and the objects. I played from the datafile as I couldn't get the runnable to load properly. Maybe I'm thick!

BORDERS - ATARI ST

This suite of borders sent in by Robin Ball will be a godsend to people with no artistic talent. What a clever fellow he is! The three borders that I saw were very well drawn indeed. There is a border to suit different types of games and my favourite just has to be the border made up of the bones with the skull peeping out at me and the green eyes peering at me from various points. The more I viewed the border the more I found to interest me.

The other items on the PD list so far are as follows and were reviewed in the last issue of the Newsletter:

DARKNESS CALLS stand alone program for AMIGA by James Yusuf.

DARKNESS CALLS objects datafile for AMIGA by James Yusuf.

PLANET OF THE DALEKS datafile and border for AMIGA by Steve Hilder.

E.F.T.P.O.T.C.M (Escape From The Planet of the Cardboard Monsters) a stand alone game and utilities for Amiga by Andrew Herbert.

AMIGA BORDERS a suite of borders for the Amiga by A.J. Bevan.

INFILTRATION a stand alone game for ATARI ST by Robin Ball.

THE MAZE datafile and border for ATARI ST (1 meg.) by David Sambrook.

ESCAPE a datafile for COMMODORE 64 by Steven Flanagan.

RACER ROUTINE and ESCAPE datafiles for C64 by Steven Flanagan.

All the disks are available from the usual address and cost just £1.50 each (UK) and £2.50 for overseas members (extra postage costs, sorry!). You are all invited to send in contributions for the Library and it would be helpful if datafiles could be included, if possible.

HOPEFULLY THERE WILL BE MORE FOR THE NEXT ISSUE!

3D CONSTRUCTION USGS GROUP

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Think, Draw and Build again...